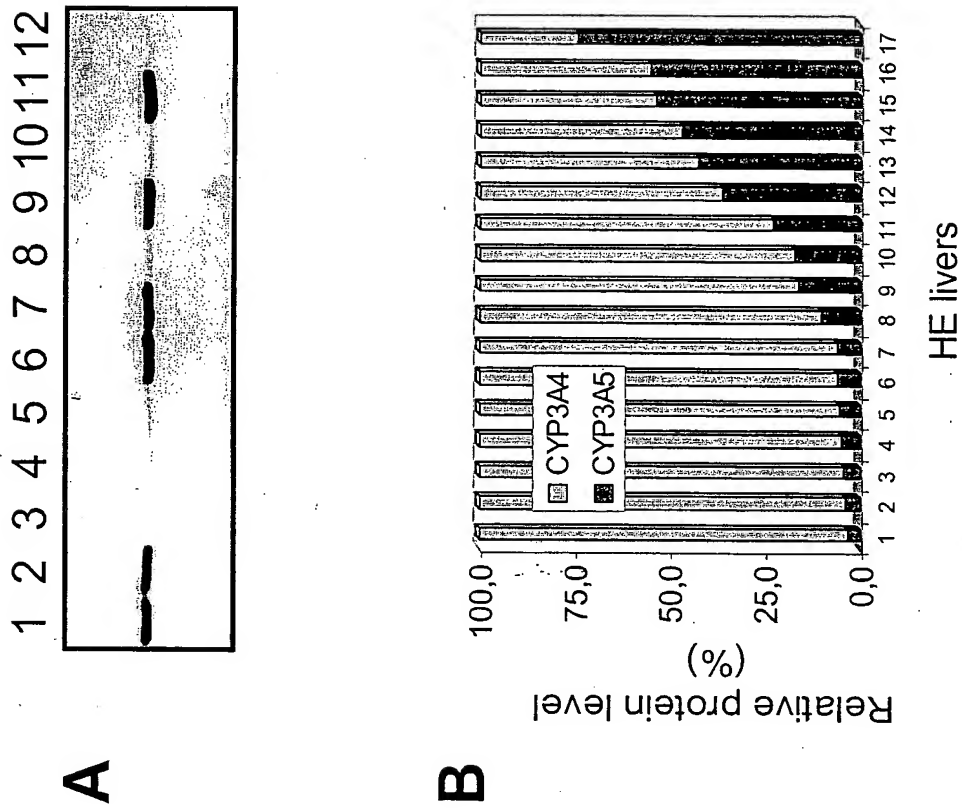


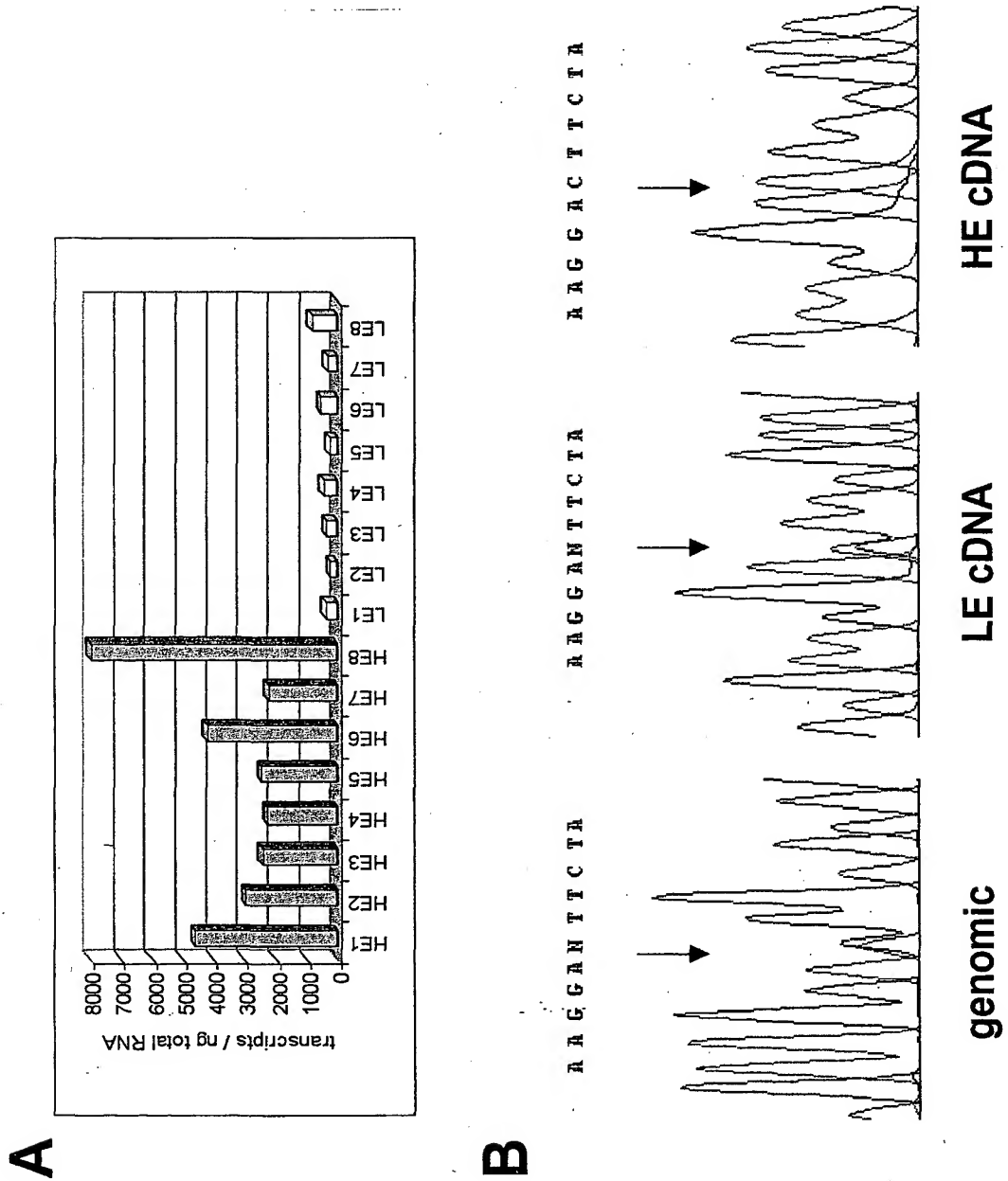
1/21

Figure 1



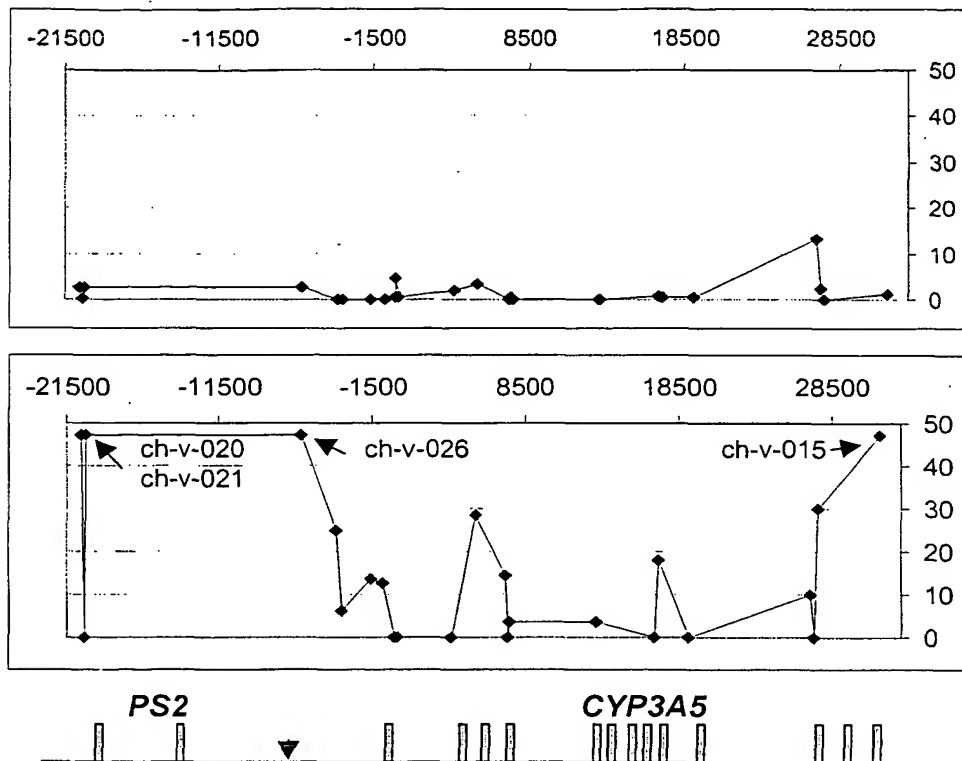
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Figure 2



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Figure 3



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Figure 4

Seq ID: 113

>chzk_ch-v-020_254T>G_ch-v-021_582A>G

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1  tggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
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121 gggtggtaga gaggaatatg gacaatagga ctgtgtgagg gggataggag gcacccagag
181 gaggaatatg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcgtgcaag gatgtgtagg agtcatctag ggggcacaaq tacactccag
301 gcagagggaa ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg ttccgtggac tccctgataa
481 aactgattaa gttgtttatg attccccata gaatatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgcg attctttgct actggctgca gctgcagccc cgcctccttc tccagcacat
601 aaacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt

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Seq ID: 114

>chzk_ch-v-031_318G>A

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1  tggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
61  ccagactgtg cccttgagga actcacctct gctaagggaa acaggcacag aaaccacaaa
121 gggtggtaga gaggaatatg gacaatagga ctgtgtgagg gggataggag gcacccagag
181 gaggaatatg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaaq tacactccag
301 gcagagggaa ttgcatgagt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg ttccgtggac tccctgataa
481 aactgattaa gttgtttatg attccccata gaatatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgcg attctttgct actggctgca gctgcagccc cactccttc tccagcacat
601 aaacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt

```

Seq ID: 115

>chzk_ch-v-032_544G>A

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1  tggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
61  ccagactgtg cccttgagga actcacctct gctaagggaa acaggcacag aaaccacaaa
121 gggtggtaga gaggaatatg gacaatagga ctgtgtgagg gggataggag gcacccagag
181 gaggaatatg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaaq tacactccag
301 gcagagggaa ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg ttccgtggac tccctgataa
481 aactgattaa gttgtttatg attccccata gaatatgaac tcaaaggagg taagcaaagg
541 ggtatgtgcg attctttgct actggctgca gctgcagccc cactccttc tccagcacat
601 aaacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt

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Figure 4 continued

Seq ID: 116

>chzk_ch-v-033_550G>A

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61  ccagactgtg  cccttgagga  actcacctct  gctaaggga  acaggcacag  aaacccacaa
121  ggggtggtaga  gaggaatatg  gacaatagga  ctgtgtgagg  gggataggag  gcaccagag
181  gaggaatgg  ttacatctgt  gtgaggaggt  tggtaggaa  agactttaat  agaaggggtc
241  tgtctggctg  ggcttgcaag  gatgtgtagg  agtcatctag  ggggcacaag  tacactccag
301  gcagaggga  ttgcatgggt  aaagatctgc  agttgtggct  tgtgggatg  gatttcaagt
361  attctggaat  gaagacagcc  atggaaacaa  gggcaggtga  gaggatattt  aagaggcttc
421  atgccaatgg  ctccacttca  gtttctgata  agaactcagg  ttccgtggac  tccctgataa
481  aactgattaa  gttgtttatg  attccccata  gaatatgaac  tcaaaggagg  taagcaaagg
541  ggtgtgtgc  attctttgct  actggctgca  gctgcagccc  cacctccttc  tccagcacat
601  aacacatttc  gcagcttgac  ctaagactgc  tgtgcagggc  agggatgctc  caggcagaca
661  gccagcaaa  caacagcaca  cagctgaaag  taagactcag  aggagacagt  tgaagaaggc
721  aagtggcgat  ggacctcatc  ccaaatttgg  cggtggaaac  ctggcttctc  ctggctgtca
781  gcctggtgct  cctctatctg  tcagtaactg  tccagattcc  tctcctctgt
```

Seq ID: 117

>chzl_ch-v-026_229A>G

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1  ggagtgcact  gattttccag  gtgctgtctg  tcaccctttt  ctttgactag  gaaagggaaac
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121  agcacgctgc  acccactgtc  ctgcaccac  tgtctggcac  tccctagtga  gatgaaccg
181  gtacctcaga  tgaaaatgca  gaaatcacc  gtcttctgtg  tcaactcac  tgggagctgt
241  agaccggagc  tgttcctatt  cggccatctt  ggctccacc  cccgagtttt  ggcttttaat
301  tgaaagtgt  ttgatgtggg  aaggagataa  tgccatgcat  ttatgagcac  atattagagg
361  gtctgagaca  atgcatgtga  taaaagggtc  cctaagggaag  aaaaaagaa  caagggaaga
421  cactggaaag  aacgtgatgc  tgggagtccc  tgggccacca  aagtctggag  aaaagtggta
481  accacaaggc  tcccagccta  gtttctactg  agacctcgac  actaggtgac  ttatgggatc
541  cttggtagga  caagccttga  aaagttttgc  aatagcaaat  gtggacgttg  tcagaaccaa
601  atagtgtcac  gtgtgtattt  gtgtgtgtgt  gtcagtgtgt  gtgttttaaa  atcatgacaa
661  ataaagcagg  ctgtgaagag  gggattccca  tgctcggtgt  cctgataaca  caactatcac
721  aaacgctttg  cgaaaccaca  agtttgcaca  aaggcaatcc  caaccttaca  caaaa
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Seq ID: 118

>chzi_ch-v-027_566G>A

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121  tcatcggata  ctttcttgaa  cattaaggag  aaatctatag  aactgaatga  atgagaacca
181  acaagtaaat  atatgtgatc  attgtaacca  ttgttgggtg  ggggcatttg  tcagaactcc
241  aatgtgatta  ttaacatagg  tgagaattaa  tccactgtga  ctttgcccat  tgcttagaaa
301  gaacattcat  agtttaatta  tgcctttttt  gaccaagcac  agtggctcat  gcctgtaatc
361  ccagcacttt  gggaggccga  ggtgggtgga  tcacctgagg  tcaggagttc  gagaccagcc
421  tgaccaacat  ggtgaaaccc  catctctact  aaaaatacaa  aaattagcta  ggtgtgggtg
481  tatgcacct  taatctcagc  taccaggag  gctgaggcag  gagaatcact  tgaacctgga
541  ggcagagggt  gcagtgcagc  gagacacacc  attacactcc  agcctgggtg  acagagtgcg
601  attccatctc  aaaaaaaaaa  aaaaaaaatt  atgccttttt  gaagcacata  cattttataa
661  catacaactg  aatcccttat  tatattatta  gttttgattt  aatgttttca  aacctctccc
721  cctgatatgt  ctgggagatg  ggaacacatg  ttctttacac  ctcttgcatc  ccattctcaa
781  ctcccaactg  tcttactgca  atgaacactt  aataagaaac  agtcaattgg  tcaattgatt
841  gggcaacagg  ctaaaccacac  tcattccttg  tctgttccca  cttctttctt  tactttccct
901  tcttgagtaa  cttatcctaa  agtcattagg  tgggtggcag  ccagatgggtg  gccacacatt
961  aaggtagaaa  agagagtgtc  atgatgggtc  caagtcagag  acctagtagg  gtgaggatca
1021  agtaggtgtt  cacgtggaga  aacagcccgg  cctgtgtgtg  ggagtccaag  caagcagaga
1081  aaatgtcgac  acagaggggt  ggcctgaaaa
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Figur 4 continued

Seq ID: 119

>chzh_ch-v-028_601G>A

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61 caggagaatc acttgaacct ggaggcagag gttgcagtga gccgagacgc accattacac
121 tccagcctgg gtgacagagt gagattccat ctcaaaaaaa aaaaaaaaaa attatgcctt
181 tttgaagcac atacatttta taacatacaa ctgaatccct tattatatta ttagttttga
241 tttaatgttt tcaaaccatc tcccctgata tttctgggag atgggaaaca tgttttctta
301 cacctcttgc attccattct caactcccaa ctgtcttact gcaatgaaca cttaataaga
361 aacagtcaat tgggtcaattg attgggcaac aggctaaaca cactcattcc ttgtctgttc
421 ccacttcttt ctttactttc ctttcttgag taacttatcc taaagtcatt aggtgggtgg
481 cagccagatg gtggccacac attaaggtag aaaagagagt gtcagtatgg ttccaagtca
541 gagacctagt aggggtgagga tcaagtaggt gttcacgtgg agaaacagcc cggcctgtgt
601 atggggagtcc aagcaagcag agaaaatgtc gacacagagg ggtggcctga aaaagcagcc
661 agagcctaaa cagggcatgg agaacaatatt tagggcatga ggtgaggagg gcatccatga
721 gtgggaaggg atgggtgagg ttctactaca taaaggggat tgatgaaata agtaaataaa
781 gtatactgga agccaggtgt gtcacttttg cagaaaagag tcatggattc agaaagg
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Seq ID: 120

>chzg_ch-v-029_464T>C

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61 cagatgggtg ccacacatta aggtagaaaa gagagtgtca tgatgggtcc aagtcagaga
121 cctagttagg tgaggatcaa gtaggtgttc acgtggagaa acagcccggc ctgtgtgtgg
181 gagtccaagc aagcagagaa aatgtcgaca cagaggggtg gcctgaaaaa gcagccagag
241 cctaaacagg gcatggagaa catatttagg gcatgagggt aggagggcat ccatgagtgg
301 gaagggatgg gtgaggtttc actacataaa ggggattgat gaaataagta aataaagtat
361 actggaagcg aggtgtgtca cttttgcaga aaagagtcac ggattcagaa agggagaaaa
421 ctgacaggaa tcctatgaaa ttagattaaa atggatgtat ccaCgtatat tcataccctt
481 ctagatagat aaatggttag ataggtgata aaaagataac aagaggacaa gataattaga
541 tagacataaa tgtatgtatg tgtttgtgtg tgtgtacaaa aaaacatata ctccctactt
601 ctctccactg atagggctag gtaacaatgg catttcaata gcaatgagca cacttagtgg
661 ccagatcttg gcttattaat accattttcc actgaaagga accagagctt tttagagaaa
721 tggctgattc cagggccagg attaagaatg ttcaagataa gcctaggata cattttgtgc
781 caggaagcaa gaagatgttc aaatgatctt caagtaatgt ttggaaatga tatttgaaaa
841 tgatttccaa atgatatttc caaatgattt ccaaatgata tatggaaaca cttaaagact
901 ccactaaaga actattagat ctgataaaca aattcagtaa tgttgctgga tcaaaaatca
961 acatacaaaa accagtagca tttctgcatg ccaacagtga acaatctggc aaaaataaaa
1021 aatgtaatcc catttacaat aaccccaaat aaaactaaat acctgggaat taacttaaga
1081 gaaagatgtc tacaattaat attgtaaaac actgatgaag gaaattgaag aagacacaaa
1141 aaagaaggat attccatggt tatatatgtt aagcattaat attgttaaaa atgtcca
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Seq ID: 121

>chza_ch-v-034_328T>C

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1 caaagcaaaa atggacaaat ggatcagatc aagttaaaaa gcttctgtac cacaaagaaa
61 gcaatcaaca aagtgaagac acaaacacaa gaatgggaga aaatatcttc aaagtccacac
121 tctgacaaca gattaatagc cagaatacat gaagcgctca aacaactctg taaggaaaaa
181 tctaataatc caatcaaaaa atgggcaaaa tttgaataga catttttcaa aagaagacat
241 acaaatgccā cataggcata tgataaggtg ctcaacatca ctggtcatta gagaaatgca
301 aatcaaaaacc acaatgagat atcatctCac ccagctaaa atgggttttta tccaaaagac
361 aggcaacaac aaatgccagc gagaatgtgg agaaaaggga acccttgtag actgttggtg
421 taaattagtg caaccactat agagaacaat ttggagggtc ctcaaaacat taaaattaac
481 attaaataga gctaccacaa tatccagaaa tccccatgct gggatatata ctggaagaaa
541 ggaaatcata tattgaagag ataacatcac tccaatattc acaatagcca ctattcacia
601 atggccaagat ttggaagcaa cctaagtgct catcaacaga tgaatggata aagaaagtac
661 tccaattata cacaatggag cacaattcag ccatgaaaaa agcatgagat cctgttatct
721 gtaataatat ggatggaact ggaggctatc atgttaagtg aaataagcca ggcacagaaa
781 cacagatatt gcaagttctc acatacttgt gggatct
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Figure 4 continued

Seq ID: 122

>chzd_ch-v-030_683T>A

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1 cattaaaatt aacattaaat agagctacca caatatccag aaatccccat gctgggtata
61 tacctggaag aaaggaaatc atatattgaa gagataacat cactccaata ttcacaatag
121 ccactattca caaatgccaa gatttggaag caacctaatg gtccatcaac agatgaatgg
181 ataaagaaag tactccaatt atacacaatg gagcacaatt cagccatgaa aaaagcatga
241 gatcctgtta tctgtaataa tatggatgga actggagggtc atcatgttaa gtgaaataag
301 ccaggcacag aaacacagat attgcaagtt ctcacatact tgtgggatct acaaatcaaa
361 acaactgagc taatgtctgg gccttagtca gtgttggtacc caagtactgg gagcacagct
421 tttaaaatac atcatgaatg ctttaataca ggaatgaata gatgagaggc acaaactggg
481 tgggtgttct tctgatacac agtatcttcc ttgacagatt cagtacaact ctcaacaggt
541 aagtcctctc atgttatgtt accttatgag gaattaagtg gcagaacatg atttctatta
601 ttttctcttg cagaacaaga ccaactttat tagttgggac acagtgtggc tgcatttgag
661 tcccaagcaa ccattagtct atagctatca ccacagagtc agaggggatg agacgcccag
721 caatctcacc caagacaact ccaccaacat tcttggttac ccaccatgtg tacagtaccc
781 tgctaggaac cagggtcatg aaagtaaata ataccagact gtgcccttga ggagctcacc
841 tctgctaagg gaaacaggca tagaaactta caatggtggt agagagaaaa gaggacaata
901 ggactgtgtg aggggggatag gaggcaccca gaggaggaaa tggttacatt tgtgtgagga
961 ggttggttaag gaaaaathtt agcagaaggg gtctgtctgg ctgggcttgg aaggatacgt
1021 aggagtcac tagagggcac aggtacactc caggcagagg gaatttcgtg ggtaaagatg
1081 tgtaggtgtg gcttgtgagg atggatttca attattctag aatgaa
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Seq ID: 123

>chzy_ch-v-002_159G>A

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1 gattaagctt ttcatgattc ctcatagaac atgaactcaa aagagggtcag caaaggggtg
61 tgtgcgattc tttgctattg gctgcagcta tagccctgcc tccttctcca gcacataaat
121 ctttcagcag cttggctgaa gactgctgtg cagggcagag aagctccagg caaacagccc
181 agcaaacagc agcactcagc taaaaggaag actcacagaa cacagttgaa gaaggaaagt
241 ggcgATGGAC CTCATCCCAA ATTTGGCGGT GGAAACCTGG CTTCTCCTGG CTGTCAGCCT
301 GGTGCTCCTC TATCTgtgag taactgtcca aactcctctc tttgtttcct tggacttggg
361 gtgctaatacg ggcccccttt cccttatctg ttttgaagat caaaagagat gttcaaggag
421 aagtagctga agtggttgac gctacaaacg catagaagtt attattatct tatgcagatc
481 tatgaatgaa taaataagca tttctcccat ccaccttcta attttggtga ctaggagggg
541 ttagggacag catttggtag tgggaatgat ttgattagct tagatctgac gaagactaat
601 caatgaaaac atggcagcgg caga
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Seq ID: 124

>chzy_ch-v-003_171C>T

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1 gattaagctt ttcatgattc ctcatagaac atgaactcaa aagagggtcag caaaggggtg
61 tgtgcgattc tttgctattg gctgcagcta tagccctgcc tccttctcca gcacataaat
121 ctttcagcag cttggctgaa gactgctgtg cagggcaggg aagctccagg taaacagccc
181 agcaaacagc agcactcagc taaaaggaag actcacagaa cacagttgaa gaaggaaagt
241 ggcgATGGAC CTCATCCCAA ATTTGGCGGT GGAAACCTGG CTTCTCCTGG CTGTCAGCCT
301 GGTGCTCCTC TATCTgtgag taactgtcca aactcctctc tttgtttcct tggacttggg
361 gtgctaatacg ggcccccttt cccttatctg ttttgaagat caaaagagat gttcaaggag
421 aagtagctga agtggttgac gctacaaacg catagaagtt attattatct tatgcagatc
481 tatgaatgaa taaataagca tttctcccat ccaccttcta attttggtga ctaggagggg
541 ttagggacag catttggtag tgggaatgat ttgattagct tagatctgac gaagactaat
601 caatgaaaac atggcagcgg caga
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Figure 4 continued

Seq ID: 125

>chzy_ch-v-004_418-420delGAG

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1 gattaagctt ttcattgattc ctcatagaac atgaactcaa aagagggtcag caaaggggtg
61 tgtgagattc tttgctattg gctgcagcta tagccctgcc tccttctcca gcacataaat
121 ctttcagcag cttggtgaa gactgctgtg cagggcaggg aagctccagg caaacagccc
181 agcaaacagc agcactcagc taaaaggaag actcacagaa caagttgaa gaaggaaagt
241 ggcgATGGAC CTCATCCCAA ATTTGGCGGT GGAAACCTGG CTTCTCCTGG CTGTCAGCCT
301 GGTGCTCCTC TATCTgtgag taactgtcca aactcctctc tttgtttcct tggacttggg
361 gtgctaatacg ggccccctttt cccttatctg ttttgaagat caaaagagat gttcaag||aag
421 tagctgaagt gttggacgct acaaacgcat agaagttatt attatcttat gcagatctat
481 gaatgaataa ataagcattt ctcccatcca ccttctaatt ttggtgacta ggaggggtta
541 gggacagcat ttggtagtgg gaatgatttg attagcttag atctgacgaa gactaatcaa
601 tgaaaacatg gcagcggcag a

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Seq ID: 126

>chzx_ch-v-005_187C>T_ch-v-006_191-192insG

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1 aggaaaggac ctgatgagtg aatgcaatta ctgatgttgg agttgctgtt attattttatc
61 gtgtacatat tacctccctc tcttgaccat tccagttcct gagtaactca ccagccctct
121 gatctataaa gtcacaaatcc ctgtgacctg atttctgttt cactttgtag ATATGGGACC
181 CGTACATATG GGACTTTTTA AGAGACTGGG AATTCCAGGG CCCACACCTC TGCCTTTGTT
241 GGGAAATGTT TTGTCTTATC GTCAGgtgag ttgcttgagc ttcctctttt gcttcttatg
301 gttgcaaaca tcagcttagt tccatcagta aaaatgcccc tccttgggag ggagttctga
361 ggtttcacat tttcagaaat ggtgggactg ggtgcagtgg atcatgcctg taatctcagc
421 ctctgtgagg ccaagactgg caaattgctt gagcccagga gtttg

```

Seq ID: 127

>peptide of ch-v-005_ch-v-006

1 MDLIPNLAVE TWLLLAIVSLV LLYLYGTRTY GTF.

Seq ID: 128

>chzw_ch-v-007_143C>T

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61 cacttcaaat atattctctg ttttcttgct tttcccttaa gacatctctg aatagcttcc
121 ttcaactgcc agtgaagat agtaggcctg atttcattgg acgcaactgt tttcagcccc
181 aattagaggt agggtttatt ctatttataa taataatcaa cttgattttt gtttcctctc
241 ccagGGTCTC TGGAAATTTG ACACAGAGTG CTATAAAAAAG TATGGAAAAA TGTGGGGgtg
301 agtattctga aaacctccat tggatagacc tgctactgtg aggaggttac cccactgcag
361 gatagtctct gcccaggtct tcatgggatg aagctcttgt caaccataat acaaacagag
421 agaggttctc tgaagaaga ggataattac ttgggagtag aatattgcaa tgggaatctg
481 cttgccgtta taactatgt gcaaatcag ggaggtaaac aagacaaaga tgctccatag
541 aaaatatgag aagaatctca taactgtttt gagataatta ttgttagcta caaagatcaa
601 ta

```

Seq ID: 129

>chzv_ch-v-008_199C>A

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1 cagtattctt tccctgtttg gaccacatta cccttcatca tatgaagcct tgggtggctc
61 ctgtgtgaga ctcttgctgt gtgtcacacc ctaatgaact agaacctaa gttgctgtgt
121 gtcgtacaac taggggtatg gattacataa cataatgatc aaagtctggc ttcctgggtg
181 tggctccagc tgcagaatag ggctagtga gtttaatcag ctccgttgct cccacacagA
241 ACGTATGAAG GTCAACTCCC TGTGCTGGCC ATCACAGATC CCGACGTGAT CAGAACAGTG
301 CTAGTGAAAG AATGTTATTC TGTCTTCACA AATCGAAGGg taagcatcca ttttttgaaa
361 tttaataaat gattgatcca ctgattaaat ttttattttg aaaaaaacat atattcacag
421 aaggttacct aaaaaatgta caggaaggtt ccatgtactc ttcatcctgt cccggccagt
481 ggtaacatct tgcaatcttg tatattgcaa tatatatcta gtatattcat attatcaggt
541 tggcacaaaa gttaaaatgg caaactacag gctgggcata atggctcatg cctg

```


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Figure 4 continued

Seq ID: 130

>chzv_ch-v-025_224C>T

```

1  cagtatctct tccctgtttg gaccacatta cccttcatca tatgaagcct tgggtggctc
61  ctgtgtgaga ctcttgctgt gtgtcacacc ctaatgaact agaacctaa gttgctgtgt
121 gtcgtacaac taggggtatg gattacataa cataatgac aaagtctggc ttcctgggtg
181 tggctccagc tgcagaatcg ggctagtga gtttaatcag ctcgttgtc cccacacagA
241 ACGTATGAAG GTCAACTCCC TGTGCTGGCC ATCACAGATC CCGACGTGAT CAGAACAGTG
301 CTAGTGAAAG AATGTTATTC TGTCTTCACA AATCGAAGGg taagcatcca ttttttga
361 tttaaataat gattgatcca ctgattaaat ttttattttg aaaaaaacat atattcacag
421 aaggttacct aaaaaatgta caggaagggt ccatgtactc ttcacctgt ccgcccagt
481 ggtaacatct tgcaatcttg tatattgcaa tatatatcta gtatattcat attatcaggt
541 tggcacaaaa gttaaaatgg caaactacag gctgggcata atgggtcatg cctg

```

Seq ID: 131

>chzv_ch-v-009_320C>A

```

1  cagtatctct tccctgtttg gaccacatta cccttcatca tatgaagcct tgggtggctc
61  ctgtgtgaga ctcttgctgt gtgtcacacc ctaatgaact agaacctaa gttgctgtgt
121 gtcgtacaac taggggtatg gattacataa cataatgac aaagtctggc ttcctgggtg
181 tggctccagc tgcagaatcg ggctagtga gtttaatcag ctccgttgc cccacacagA
241 ACGTATGAAG GTCAACTCCC TGTGCTGGCC ATCACAGATC CCGACGTGAT CAGAACAGTG
301 CTAGTGAAAG AATGTTATTAA TGTCTTCACA AATCGAAGGg taagcatcca ttttttga
361 tttaaataat gattgatcca ctgattaaat ttttattttg aaaaaaacat atattcacag
421 aaggttacct aaaaaatgta caggaagggt ccatgtactc ttcacctgt ccgcccagt
481 ggtaacatct tgcaatcttg tatattgcaa tatatatcta gtatattcat attatcaggt
541 tggcacaaaa gttaaaatgg caaactacag gctgggcata atgggtcatg cctg

```

Seq ID: 132

>peptide of ch-v-009_320C>A

1 MWGTYEGQLP VLAITDPDVI RTVLVKECYY VFTNRRSLGP VGFMKSAISL AEDEEWKRIR

Seq ID: 133

>chzv_ch-v-018_441-444insCTAAAAAAT

```

1  cagtatctct tccctgtttg gaccacatta cccttcatca tatgaagcct tgggtggctc
61  ctgtgtgaga ctcttgctgt gtgtcacacc ctaatgaact agaacctaa gttgctgtgt
121 gtcgtacaac taggggtatg gattacataa cataatgac aaagtctggc ttcctgggtg
181 tggctccagc tgcagaatcg ggctagtga gtttaatcag ctccgttgc cccacacagA
241 ACGTATGAAG GTCAACTCCC TGTGCTGGCC ATCACAGATC CCGACGTGAT CAGAACAGTG
301 CTAGTGAAAG AATGTTATTC TGTCTTCACA AATCGAAGGg taagcatcca ttttttga
361 tttaaataat gattgatcca ctgattaaat ttttattttg aaaaaaacat atattcacag
421 aaggttacct aaaaaatgta cctaaaaaat gaaggttcca tgtactcttc atcctgtccc
481 gcccagtggt aacatcttgc aatcttgtat attgcaatat atatctagta tattcatatt
541 atcaggttgg cacaaaagtt aaaatggcaa actacagggt gggcataatg gctcatgcct
601 g

```

Seq ID: 134

>chzt_ch-v-016_145T>G

```

1  agcggaaaac tcaaggaggt atgaaaataa gatgagtctt aattagaaat gtaaagaatg
61  aatctgggga caggtagaaa gtaagatcac agtccgtttc caaggggtag tccactgagt
121 tcgagcttcc taaaaatggt ctttgatctt tatgtacaga aaagacatca caaaattcat
181 taaaaaatgt cacttactgc tccatgctgg agaaagccat atccttcttg gacttgagtc
241 tgcacattta actacaggta ctgatctgtt ttgtgcttag ATGTTCCCCA TCATTGCCCA
301 GTATGGAGAT GTATTGGTGA GAAACTTGAG GCGGGAAGCA GAGAAAGGCA AGCCTGTAC
361 CTTGAAAGAG taagtaggag cacagccatg gggttctgag ctgtcatgag cccttcagc
421 tgcctgccat ggagtcgaca gtcgcactgt tgggttactc cagtgaccag acaaaagcag
481 ggcagcgctg caactccaaa gagccaccta agaggagggt gctcccatga ggcggcaagt
541 cagcaaggga aaagggcctt ctctcctgtg cacaggagcc aggatttact tatctgttaa
601 ctt

```

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Figure 4 continued

Seq ID: 135

>chzt_ch-v-019_241T>C

```
1 agcggaaaaac tcaaggaggt atgaaaataa gatgagtcctt aattagaaat gtaaagaatg
61 aatctgggga caggtagaaa gtaagatcac agtccgtttc caaggggtag tccactgagt
121 tcgagcttcc taaaaatggt cttttatctt tatgtacaga aaagacatca caaaattcat
181 tacaaaaatgt cacttactgc tccatgctgg agaaagccat atccttctgg gacttgagtc
241 cgcacattta actacaggta ctgatctggt ttgtgcttag ATGTTCCCCA TCATTGCCCA
301 GTATGGAGAT GTATTGGTGA GAAACTTGAG GCGGGAAGCA GAGAAAGGCA AGCCTGTCAC
361 CTTGAAAGAg taagtaggag cacagccatg gggttctgag ctgtcatgag cccttccagc
421 tgcctgccat ggagtcgaca gtcgcactgt tgggttactc cagtgaccag acaaaagcag
481 ggcagcgctg caactccaaa gagccaccta agagggagtg gtcctcatga ggcggcaagt
541 cagcaaggga aaagggcctt ctctcctgtg cacaggagcc aggatttact tatctgttaa
601 ctt
```

Seq ID: 136

>chzq_ch-v-010_132-133insGTC

```
1 attggacatg atagctagat ttgtttcagg aaaacatcct gctttccaag gatttagatg
61 aatgtttttg ttcactggtg actcaggtaa cacgtcttca agaagccata gggagggttga
121 gggaggggaag tcgtcaaagaa gggagggttga ggactgcact ttgattttac ttctgacttc
181 acgagtcact ttctgccaaa gaaatctctc cttttgcttc tagCACCGAC TAGATTTCCT
241 TCAGCTGATG ATTGACTCCC AGAATTCGAA AGAAACTGAG TCCACAAAG gtaaccaagg
301 agtgcttctg agggctactg gcggggacac taagagggag ggccttggtc tgaaaatgtg
361 caggaagtat tccaggaaga tgagaatttt tgccacatag cagaacaaca cacatttaga
421 gtgtataaat gtagctgga ggcactttcc agaagccac aggtatagcc atgttccagg
481 ctgaaagggc aaccctaagc aaacctagaa tgcttggagg acagtcagtg gtttgtggat
541 cacctacatg agatcaaag ccagttctca gcctcctcca gatccacca gtgagaacct
601 ctacttgga atttatatca aacata
```

Seq ID: 137

>chzq_ch-v-011_364G>T

```
1 attggacatg atagctagat ttgtttcagg aaaacatcct gctttccaag gatttagatg
61 aatgtttttg ttcactggtg actcaggtaa cacgtcttca agaagccata gggagggttga
121 gggaggggaag tcaagaaggg aggttgagga ctgcactttt gatttacttc tgacttcacg
181 agtcactttc tgccaaagaa atctctcctt ttgcttctag CACCGACTAG ATTTCTTCA
241 GCTGATGATT GACTCCCAGA ATTCGAAAGA AACTGAGTCC CACAAAGgta accaaggagt
301 gcttctgagg gctactggcg gggacactaa gagggagggc cttgttctga aaatgtgcag
361 gaatttattcc aggaagatga gaatttttgc cacatagcag aacaacacac atttagatgt
421 tataaatggt agctggaggc actttccaga agcccacagg tatagccatg ttccaggctg
481 aaagggcaac cctaagcaaa cctagaatgc ttggaggaca gtcagtggtt tgtggatcac
541 ctacatgaga tcaaatgcca gttctcagcc tcctccagat ccaccaagtg agaacctcta
601 cttggaaatt tatatcaaac ata
```

Seq ID: 138

>chzp_ch-v-012_269G>A

```
1 agataaagta ctttttaggat cattcaaggc acacacccat aacactgagt atgtaagaca
61 gaaatgctct ctctggaaat tacagcagtg ctgggtgctgg gatgccatga tgaggagtgt
121 gtggcccaaca atcatgtaga ccttgggaaa acctggatta aaatgatttt gcgtcatcct
181 ggccctgtat aagatacata tcagaatgaa aaccactccc agtgtgactt tgaattgctt
241 ttccattttt tcttcttggg attagagaac ttcaacttaga ttcatctaa gctgtgatgt
301 tgtacgttga cctgatttac ctaaaatgtc tttcctctcc tttcagCTCT GTCTGATCTG
361 GAGCTCGCAG CCCAGTCAAT AATCTTCATT TTTGCTGGCT ATGAAACCAC CAGCAGTGTT
421 CTTTCTTCA CTTTATATGA ACTGGCCACT CACCCTGATG TCCAGAGAA ACTGCAAAAG
481 GAGATTGATG CAGTTTGGCC CAATAAGgtg aggggatgac ccctggagat gaaggggaaga
541 ggtgaagcct tagcaaaaat gcctcctcac cactccccag gagaattttt ataaaaagca
601 taatcactga ttcttctact gacataatgt aggaagcctc tgaggagaaa aacaaaggga
661 gaaacataga gaacgggttg tactggcaga agcataagat ctttgtacaa tattgctggc
721 cctgggttcac ctgtttactg ttatcacaat aatgctaagt aaaaaaaaaa aaaaaaaaaa
```

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Figure 4 continued

781 aaaaaaaaaa aggagtgtgg cgagaagatg gccaaacagg aacagc

Seq ID: 139

>chzm_ch-v-013_167A>G

```
1 gtcacctgggg tgaggatggt cttgaatata tcctacattc ataactcctc cacacatctc
61 agtaggtcac tgagcacatc aatggacatg ccagttatta aaatacttca cgaatactat
121 gatcattttac cagtatgagt tattctctgg agcttctaata acttcaatag tactgcatgg
181 actcagttga gagttaattc aaaatctcag attatccaat tctgtttctt tccttccagG
241 CACCACCTAC CTATGATGCC GTGGTACAGA TGGAGTACCT TGACATGGTG GTGAATGAAA
301 CACTCAGATT ATTCCAGTT GCTATTAGAC TTGAGAGGAC TTGCAAGAAA GATGTTGAAA
361 TCAATGGGGT ATTCATTCCC AAAGGGTCAA TGGTGGTGAT TCCAACCTAT GCTCTTCACC
421 ATGACCCAAA GTACTGGACA GAGCCTGAGG AGTTCCGCCC TGAAAGgtac aagtctccag
481 ggaaatggag ctcaccctga cccaggctgg ttcaagcata ttctgcctct cttaatctac
541 atgacaatcg tgtggttgta caatcatttg cttgtaagtc tttttatcac aaaaaagtga
601 taattatcaa actttacaaa ccacagacta gaaaaaacga aactacatcc atccacagtc
661 ccagcacaag acaaaagataa tcaattatgt ccctgtgggc atttttctac gcctatatag
721 attttttaaaa attagaatgg tatcactttt tatttggttt gaattgctgc ttacttgatt
781 taacaggaaa ctatc
```

Seq ID: 140

>chzm_ch-v-017_248-249inst

```
1 gtcacctgggg tgaggatggt cttgaatata tcctacattc ataactcctc cacacatctc
61 agtaggtcac tgagcacatc aatggacatg ccagttatta aaatacttca cgaatactat
121 gatcattttac cagtatgagt tattctctgg agcttctaata acttcaatag tactgcatgg
181 actcagttga gagttaattc aaaatctcag attatccaat tctgtttctt tccttccagG
241 CACCACCTTA CCTATGATGC CGTGGTACAG ATGGAGTACC TTGACATGGT GGTGAATGAA
301 AACTCAGAT TATTCCAGT TGCTATTAGA CTTGAGAGGA CTTGCAAGAA AGATGTTGAA
361 ATCAATGGGG TATTCAATCC CAAAGGGTCA ATGGTGGTGA TTCCAACCTA TGCTCTTCAC
421 CACTACCCAA AGTACTGGAC AGAGCTGAG TGGTCCGCC CTGAAAGgta caagtctcca
481 gggaaatgga gctcaccctg acccaggctg gttcaagcat attctgcctc tcttaatcta
541 catgacaatc gtgtggttggt acaatcattt gcttgtaagt ctttttatca caaaaaagtg
601 ataattatca aactttacaa accacagact agaaaaaacg aaactacatc catccacagt
661 cccagcaca gacaaaagata atcaattatg tccctgtggg catttttcta cgcctatata
721 gatttttaaaa aattagaatg gtatcacttt ttatttggtt tgaattgctg cttacttgat
781 ttaacaggaa actatc
```

Seq ID: 141

>peptide of ch-v-017_248-249inst

1 ALSDLELAAQ SIIFIFAGYE TTSSVLSFTL YELATHPDVQ QKLQKEIDAV LPNKAPPYL.

Seq ID: 142

>chzm_ch-v-014_643C>T

```
1 gtcacctgggg tgaggatggt cttgaatata tcctacattc ataactcctc cacacatctc
61 agtaggtcac tgagcacatc aatggacatg ccagttatta aaatacttca cgaatactat
121 gatcattttac cagtatgagt tattctctgg agcttctaata acttcaatag tactgcatgg
181 actcagttga gagttaattc aaaatctcag attatccaat tctgtttctt tccttccagG
241 CACCACCTAC CTATGATGCC GTGGTACAGA TGGAGTACCT TGACATGGTG GTGAATGAAA
301 CACTCAGATT ATTCCAGTT GCTATTAGAC TTGAGAGGAC TTGCAAGAAA GATGTTGAAA
361 TCAATGGGGT ATTCATTCCC AAAGGGTCAA TGGTGGTGAT TCCAACCTAT GCTCTTCACC
421 ATGACCCAAA GTACTGGACA GAGCCTGAGG AGTTCCGCCC TGAAAGgtac aagtctccag
481 ggaaatggag ctcaccctga cccaggctgg ttcaagcata ttctgcctct cttaatctac
541 atgacaatcg tgtggttgta caatcatttg cttgtaagtc tttttatcac aaaaaagtga
601 taattatcaa actttacaaa ccacagacta gaaaaaacga aaatcacatcc atccacagtc
661 ccagcacaag acaaaagataa tcaattatgt ccctgtgggc atttttctac gcctatatag
721 attttttaaaa attagaatgg tatcactttt tatttggttt gaattgctgc ttacttgatt
781 taacaggaaa ctatc
```

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Figure 4 continued

Seq ID: 143

>chzn_ch-v-015_351T>C

```
1 caggcctggc acagagtcag tgctccataa atattttgtt aaacgatgga tggtagtgct
61 ttttactatc cagtattttac ccagcttata gattaagtat gaagagttca agatacatgg
121 tgttaagagt cgtttttata tgcttgcaaa gcatttttgt catatttttt ctactttgct
181 tccatctttt cttctttcac ttcattttatt aattctccat atgcttggtt aactattgta
241 gATCCCCCTG AAATTAGACA CGCAAGGACT TCTTCAACCA GAAAAACCCA TTGTCTATAA
301 GGTGGATTCA AGAGATGGAA CCCTAAGTGG AGAATGAgtt attctaagga cttctacttt
361 ggtcttcaag aaagctgtgc cccagaacac cagagatttc aacttagtca ataaaacctt
421 gaaataaaga tgggcttaat ctaatgtact gcatgagtag ttggtgattt tgtacattca
481 ttgagctctc ccagagtctg tgtagagtgt tgtgcattat gtagtataaa ggaggtgacc
541 aggtaagtga cagataggta gactcagctt ctctgcttct cataggacta cctctaccca
601 cctctagtta gcatta
```

Seq ID: 145

>peptide of ch-v-001_406C>A

..1 PVAIRLERTC KKDVEINGVF IPKGS MVVIP NYALHHDPKY WTEPEEFRPE RFSKKKDSID

Seq ID: 206

>chyu_ch-v-048_206G>A

```
1 catttagtcc ttgtgagcac ttgatgattt acctgccttc aatttttcac tgacctaatā
61 ttctttttga taatgaagta ttttaaacad ataaaacatt atggagagtg gcataggaga
121 taccacgta tgtaccaccc agcttaacga atgctctact gtcatttcta accataatct
181 ctttaaagag ctcttttgtc tttca tatc tcttccctgt ttggaccaca ttacccttca
241 tcatatgaag ccttgggtgg ctctgtgtg agactcttgc tgtgtgtcac accctaataa
301 actagaacct aaggttgctg tgtgtcgtac aactaggggt atggattaca taacataatg
361 atcaaagtct ggcttcctgg gtgtggctcc agctgcagaa tcgggctagt gaagttaaat
421 cagctccgtt gtccccacac agAA
```

Seq ID: 207

>chzk_ch-v-037_230T>C

```
1 tggtcaccca ccatgtgtac agtaccctgc taggggccag ggtcatgaaa gtaaataata
61 ccagactgtg cccttgagga actcacctct gctaaggga acaggcacag aaaccacaa
121 gggtggtaga gaggaaatag gacaatagga ctgtgtgagg gggataggag gcaccagag
181 gaggaaatgg ttacatctgt gtgaggaggt tggtaaggaa agactttta agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaag tacactccag
301 gcagaggga ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg ttccgtggac tccctgataa
481 aactgattaa gttgtttatg attccccata gaatatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgct attctttgct actggctgca gctgcagccc cacctcttc tccagcacat
601 aacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctctctgt
```

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Figure 4 continued

Seq ID: 208

>chzk_ch-v-038_506C>T

```
1  tgggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
61  ccagactgtg cccttgagga actcacctct gctaagggaa acaggcacag aaaccacaa
121 gggtggtaga gaggaatag gacaatagga ctgtgtgagg gggataggag gcaccagag
181 gaggaatgg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaag tacactccag
301 gcagagggaa ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg tccctggtac tccctgataa
481 aactgattaa gttgtttatg attccatcata gaatatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgcg attctttgct actggctgca gctgcagccc cacctccttc tccagcacat
601 aaacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt
```

Seq ID: 209

>chzk_ch-v-039_514T>C

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1  tgggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
61  ccagactgtg cccttgagga actcacctct gctaagggaa acaggcacag aaaccacaa
121 gggtggtaga gaggaatag gacaatagga ctgtgtgagg gggataggag gcaccagag
181 gaggaatgg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaag tacactccag
301 gcagagggaa ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg tccctggtac tccctgataa
481 aactgattaa gttgtttatg attccccata gaaatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgcg attctttgct actggctgca gctgcagccc cacctccttc tccagcacat
601 aaacatttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cggtggaaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt
```

Seq ID: 210

>chzh_ch-v-051_455T>G

```
1  caaaaattag ctaggtgtgg tggtatgcac ctataatctc agctaccag gaggtgagg
61  caggagaatc acttgaacct ggaggcagag gttgcagtga gccgagacgc accattacac
121 tccagcctgg gtgacagagt gagattccat ctcaaaaaaa aaaaaaaatt attatgcctt
181 tttgaagcac atacatttta taacatacaa ctgaatccct tattatatta ttagttttga
241 tttaatgttt tcaaaccatc tcccctgata tttctgggag atgggaaaca tgttttctta
301 cacctcttgc attccattct caactcccaa ctgtcttact gcaatgaaca cttaataaga
361 aacagtcaat tggatcaattg attgggcaac aggtctaaaca cactcattcc ttgtctgttc
421 ccacttcttt ctttactttc ctttcctgag taacgtatcc taaagtcatt aggtgggtgg
481 cagccagatg gtggccacac attaaggtag aaaagagagt gtcattgatg ttccaagtca
541 gagacctagt aggggtgagga tcaagtaggt gttcacgtgg agaaacagcc cggcctgtgt
601 gtgggagttc aagcaagcag agaaaatgct gacacagagg ggtggcctga aaaagcagcc
661 agagcctaaa cagggcatgg agaactattt tagggcatga ggtgaggagg gcatccatga
721 gtgggaagg atgggtgagg tttcactaca taaaggggat tgaatgaaata agtaataaaa
781 gtatactgga agccaggtgt gtcacttttg cagaaaagag tcatggattc agaaagg
```

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Figure 4 continued

Seq ID: 211

>chzh_ch-v-052_577G>A

```
1   caaaaattag  ctagggtgtgg  tgggtatgcac  ctataatctc  agctaccag  gaggctgagg
61  caggagaatc  acttgaacct  ggaggcagag  gttgcagtga  gccgagacgc  accattacac
121 tccagcctgg  gtgacagagt  gagattccat  ctcaaaaaaa  aaaaaaaaaa  attatgcctt
181 tttgaagcac  atacatttta  taacatacaa  ctgaatccct  tattatatta  ttagttttga
241 tttaatgttt  tcaaaccatc  tcccctgata  tttctgggag  atgggaaaca  tgttttctta
301 cacctcttgc  attccattct  caactcccaa  ctgtcttact  gcaatgaaca  cttaataaga
361 aacagtcaat  tgggtcaattg  attgggcaac  aggctaaaca  cactcattcc  ttgtctgttc
421 ccacttcttt  ctttactttc  ccttccctgag  taacttatcc  taaagtcatt  aggtgggtgg
481 cagccagatg  gtggccacac  attaaggtag  aaaagagagt  gtcattgatg  ttccaagtca
541 gagacctagt  aggggtgagga  tcaagtaggt  gttcacatgg  agaaacagcc  cggcctgtgt
601 gtgggagtcc  aagcaagcag  agaaaatgtc  gacacagagg  ggtggcctga  aaaagcagcc
661 agagcctaaa  cagggcatgg  agaacaatatt  tagggcatga  ggtgaggagg  gcatccatga
721 gtgggaaggg  atgggtgagg  tttcactaca  taaaggggat  tgatgaaata  agtaaataaa
781 gtatactgga  agccaggtgt  gtcacttttg  cagaaaagag  tcatggattc  agaaagg
```

Seq ID: 212

>chzw_ch-v-053_163G>A

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1   catagacaag  ggtgagtcct  tcagtactta  gagaaaattc  aagagtgact  ttaaattccc
61  cacttcaaat  atattctctg  ttttcttgtc  tttcccttaa  gacatctctg  aatagcttcc
121 ttcaactgcc  agtgaaagat  agcaggcctg  atttcattgg  acacaactgt  tttcagcccc
181 aattagaggt  agggtttatt  ctatttaaaa  taataatcaa  cttgtatttt  gtttctcttc
241 ccagGGTCTC  TGGAAATTTG  ACACAGAGTG  CTATAAAAAG  TATGGAAAAA  TGTGGGGgtg
301 agtattctga  aaacctccat  tggatagacc  tgctactgtg  aggaggttac  cccactgcag
361 gatagtctct  gccaggtct  tcatgggatg  aagctcttgt  caacctaaat  acaaacagag
421 agaggttctc  tgaaagaaga  ggataattac  ttgggagtag  aatattgcaa  tgggaatctg
481 cttgccgtta  taaactatgt  gcaaatccag  ggaggtaaac  aagacaaaga  tgctccatag
541 aaaatatgag  aagaatctca  taactgtttt  gagataatta  ttgttagcta  caaagatcaa
601 ta
```

Seq ID: 213

>chzw_ch-v-054_444T>A

```
1   catagacaag  ggtgagtcct  tcagtactta  gagaaaattc  aagagtgact  ttaaattccc
61  cacttcaaat  atattctctg  ttttcttgtc  tttcccttaa  gacatctctg  aatagcttcc
121 ttcaactgcc  agtgaaagat  agcaggcctg  atttcattgg  acgcaactgt  tttcagcccc
181 aattagaggt  agggtttatt  ctatttaaaa  taataatcaa  cttgtatttt  gtttctcttc
241 ccagGGTCTC  TGGAAATTTG  ACACAGAGTG  CTATAAAAAG  TATGGAAAAA  TGTGGGGgtg
301 agtattctga  aaacctccat  tggatagacc  tgctactgtg  aggaggttac  cccactgcag
361 gatagtctct  gccaggtct  tcatgggatg  aagctcttgt  caacctaaat  acaaacagag
421 agaggttctc  tgaaagaaga  ggaataattac  ttgggagtag  aatattgcaa  tgggaatctg
481 cttgccgtta  taaactatgt  gcaaatccag  ggaggtaaac  aagacaaaga  tgctccatag
541 aaaatatgag  aagaatctca  taactgtttt  gagataatta  ttgttagcta  caaagatcaa
601 ta
```

Seq ID: 214

>chzt_ch-v-043_294T>C

```
1   agcggaaaac  tcaaggaggt  atgaaaataa  gatgagtctt  aattagaaat  gtaaagaatg
61  aatctgggga  caggtagaaa  gtaagatcac  agtccgtttc  caaggggtag  tccactgagt
121 tcgagcttcc  taaaaatggt  cttttatctt  tatgtacaga  aaagacatca  caaaattcat
181 tacaaaatgt  cacttactgc  tccatgctgg  agaaagccat  atccttctgg  gacttgagtc
241 tgcacattta  actacaggta  ctgatctggt  ttgtgcttag  ATGTTCCCCA  TCACTGCCCA
301 GTATGGAGAT  GTATTGGTGA  GAAACTTGAG  GCGGGAAGCA  GAGAAAGGCA  AGCCTGTAC
361 CTTGAAAGAG  taagtaggag  cacagccatg  gggttctgag  ctgtcatgag  cccttcagc
421 tgcctgccat  ggagtcgaca  gtcgcactgt  ttgggttact  cagtgcaccg  acaaaagcag
481 ggcagcgctg  caactccaaa  gagccaccta  agaggagtg  gctcccatga  gcgggcaagt
541 cagcaaggga  aaagggcctt  ctctctctgt  cacaggagcc  aggatttact  tatctgtta
```

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Figure 4 continued

601 ctt

Seq ID: 215

>peptide of ch-v-043_294T>C

1 SLAEDEEWKR IRSLLSPTFT SGKLKEMFPI TAQYGDVLR NLRREAEGKG PVTLKDIFGA

Seq ID: 216

>chzt_ch-v-055_444G>A

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1 agcggaaaac tcaaggaggt atgaaaataa gatgagtctt aattagaaat gtaaagaatg
61 aatctgggga caggtagaaa gtaagatcac agtccgtttc caaggggtag tccactgagt
121 tcgagcttcc taaaaatggt cttttatctt tatgtacaga aaagacatca caaaattcat
181 taaaaaatgt cacttactgc tccatgctgg agaaaagccat atccttctgg gacttgagtc
241 tgcacattta actacaggta ctgatctgtt ttgtgcttag ATGTTCCCCA TCATTGCCCA
301 GTATGGAGAT GTATTGGTGA GAAACTTGAG GCGGGAAGCA GAGAAAGGCA AGCCTGTCAC
361 CTTGAAAGAG taagtaggag cacagccatg gggttctgag ctgtcatgag cccttccagc
421 tgcctgccat ggagtcgaca gtcacaactgt tgggttactc cagtgaccag aaaaagcag
481 ggcagcgctg caactccaaa gagccaccta agagggagtg gctcccatga ggcggcaagt
541 cagcaagggg aaagggcctt ctctcctgtg cacaggagcc aggatttact tatctgttaa
601 ctt

```

Seq ID: 217

>chzs_ch-v-050_437G>A

```

1 cagagcttac atatcttata tcatccacac tcaacacatg ctactgtagt tgtctgataa
61 tgggtctctg tcttcctatg actgggctcc ttgacctcag aggtagagtct aactcagctt
121 gggtgtctcca tcacccccag catagggcca gctccatcac tggcaccaga taaccacctt
181 ctgaggggagt agatggaaga tgattcagca gatagttctg aaagtctgtg gctctttatg
241 tgtcttgact ggatatgtgg gtttcttgct gcatgtatag tggaaggacg gtaagagggtg
301 ctgatttttaa ttttccatat ctttctccac tcagCATCTT TGGGGCCTAC AGCATGGATG
361 TGATTACTGG CACATCATTT GGAGTGAACA TCGACTCTCT CAACAATCCA CAAGACCCCT
421 TTGTGGAGAG CACTAAAAAG TTCCTAAAAT TTGGTTTCTT AGATCCATTA TTTCTCTCAA
481 TAAgtatgtg ggctattatt tctttctctc tttttaaaaa taactgcttt cttgacatat
541 aattcacata tcgtataatt catccactta aaaggtacaa ttccattggt ttaagataa
601 tcaaaaatat gtatgaccat tactattgta aactaaaatg tttttgtcaa tctagagccc
661 tcacacactt tagctgtcaa caccaccca caaacccac tgccctaagc atccaataat
721 caactttctg cctctataga tttgcctatt ctggacactt catagaaata atatcatt

```

Seq ID: 218

>chzs_ch-v-056_467A>G

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1 cagagcttac atatcttata tcatccacac tcaacacatg ctactgtagt tgtctgataa
61 tgggtctctg tcttcctatg actgggctcc ttgacctcag aggtagagtct aactcagctt
121 gggtgtctcca tcacccccag catagggcca gctccatcac tggcaccaga taaccacctt
181 ctgaggggagt agatggaaga tgattcagca gatagttctg aaagtctgtg gctctttatg
241 tgtcttgact ggatatgtgg gtttcttgct gcatgtatag tggaaggacg gtaagagggtg
301 ctgatttttaa ttttccatat ctttctccac tcagCATCTT TGGGGCCTAC AGCATGGATG
361 TGATTACTGG CACATCATTT GGAGTGAACA TCGACTCTCT CAACAATCCA CAAGACCCCT
421 TTGTGGAGAG CACTAAGAAG TTCCTAAAAT TTGGTTTCTT AGATCCGTTA TTTCTCTCAA
481 TAAgtatgtg ggctattatt tctttctctc tttttaaaaa taactgcttt cttgacatat
541 aattcacata tcgtataatt catccactta aaaggtacaa ttccattggt ttaagataa
601 tcaaaaatat gtatgaccat tactattgta aactaaaatg tttttgtcaa tctagagccc
661 tcacacactt tagctgtcaa caccaccca caaacccac tgccctaagc atccaataat
721 caactttctg cctctataga tttgcctatt ctggacactt catagaaata atatcatt

```

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Figure 4 continued

Seq ID: 219

>chzs_ch-v-057_583C>T

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1 cagagcttac atatcttata tcatccacac tcaacacatg ctactgtagt tgtctgataa
61 tgggtctctg tcttcctatg actgggctcc ttgacctcag aggtagtct aactcagctt
121 ggtgtctcca tcacccccag catagggcca gctccatcac tggcaccaga taaccacctt
181 ctgagggagt agatggaaga tgattcagca gatagttctg aaagtctgtg gctctttatg
241 tgtcttgact ggatatgtgg gtttcttgct gcatgtatag tggaggacg gtaagagggtg
301 ctgattttaa ttttccatat ctttctccac tcagCATCTT TGGGGCCTAC AGCATGGATG
361 TGATTACTGG CACATCATTT GGAGTGAACA TCGACTCTCT CAACAATCCA CAAGACCCCT
421 TTGTGGAGAG CACTAAGAAG TTCCTAAAAT TTGGTTTCTT AGATCCATTA TTTCTCTCAA
481 TAAgtatgtg ggctattatt tctttctctc tttttaaaaa taactgcttt cttgacatat
541 aattcacata tcgtataatt catccactta aaaggtagaa ttccattggt ttaagataa
601 tcaaaaatat gtatgacctat tactattgta aactaaaatg ttttgtcaa tctagagccc
661 tcacacactt tagctgtcaa caccaccca caaacccac tgccctaagc atccaataat
721 caactttctg cctctataga tttgcctatt ctggacactt catagaaata atatcatt
```

Seq ID: 220

>chzs_ch-v-058_650A>G

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1 cagagcttac atatcttata tcatccacac tcaacacatg ctactgtagt tgtctgataa
61 tgggtctctg tcttcctatg actgggctcc ttgacctcag aggtagtct aactcagctt
121 ggtgtctcca tcacccccag catagggcca gctccatcac tggcaccaga taaccacctt
181 ctgagggagt agatggaaga tgattcagca gatagttctg aaagtctgtg gctctttatg
241 tgtcttgact ggatatgtgg gtttcttgct gcatgtatag tggaggacg gtaagagggtg
301 ctgattttaa ttttccatat ctttctccac tcagCATCTT TGGGGCCTAC AGCATGGATG
361 TGATTACTGG CACATCATTT GGAGTGAACA TCGACTCTCT CAACAATCCA CAAGACCCCT
421 TTGTGGAGAG CACTAAGAAG TTCCTAAAAT TTGGTTTCTT AGATCCATTA TTTCTCTCAA
481 TAAgtatgtg ggctattatt tctttctctc tttttaaaaa taactgcttt cttgacatat
541 aattcacata tcgtataatt catccactta aaaggtagaa ttccattggt ttaagataa
601 tcaaaaatat gtatgacctat tactattgta aactaaaatg ttttgtcag tctagagccc
661 tcacacactt tagctgtcaa caccaccca caaacccac tgccctaagc atccaataat
721 caactttctg cctctataga tttgcctatt ctggacactt catagaaata atatcatt
```

Seq ID: 221

>chzr_ch-v-059_205T>C

```
1 agaagggtgcc attgatctca ctgctgtagt ggtgtttcct atgtatagac ctgcccttgc
61 tcagtcgccg gcctgaaaga agggcaaaaca tgataaaagg aatgggttcc agttgagaat
121 catgatgttc ttattcttat tactggtaga gaaaattata attgctccag gtaaagtgtg
181 cattttcaat gatttccttt tgttctgttt gtttttccca cagTACTCTT TCCATTCCCTT
241 ACCCCAGTTT TTGAAGCATT AAATGTCTCT CTGTTTCCAA AAGATACCAT AAATTTTTTA
301 AGTAAATCTG TAAACAGAAT GAAGAAAAGT CGCCTCAACG ACAAACAAAA Ggtaaaatct
361 gatggtggtt aaatgacgat gtttaggttt tgataaattt agattttata cacatgatag
421 agcatgtatc tgtattttta aaaataaaga cagagaactt atgttttagaa caagagaagc
481 catttggtag aaataaagaa ggagattggg gaaggagatg agaatgagtc agagagatag
541 cattttaaacc ttgaaatcag gcacaacaat tagtatgtca tgatataaac agtattgaga
601 taaaatttta ccacttctct tccctttaat aaattgtcaa aggataaagt ttctgtttg
661 aaaatatatt
```


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Figure 4 continued

Seq ID: 222

>chzr_ch-v-060_496A>C

```

1  agaaggtgcc attgatctca ctgctgtagt ggtgtttcct atgtatagac ctgcccttgc
61  tcagtcgccg gcctgaaaga agggcaaaca tgataaaagg aatgggttcc agttgagaat
121 catgatgttc ttattcttat tactggtaga gaaaattata attgctccag gtaaagtgtg
181 cattttcaat gatttctctt tgtttgtttt gtttttccca cagTACTCTT TCCATTCCCTT
241 ACCCCAGTTT TTGAAGCATT AAATGTCTCT CTGTTTCCAA AAGATACCAT AAATTTTTTA
301 AGTAAATCTG TAAACAGAAT GAAGAAAAGT CGCCTCAACG ACAAACAAAA Ggtaaaatct
361 gatggtggtt aaatgacgat gtttaggttt tgataaattt agattttata cacatgatag
421 agcatgtatc tgtattttta aaaataaaga cagagaactt atgttttagaa caagagaagc
481 catttggtag aaatacagaa ggagattggg gaaggagatg agaatgagtc agagagatag
541 catttaaaac ttgaaatcag gcacaacaat tagtatgtca tgatataaac agtattgaga
601 taaaatttta ccacttctct tccctttaat aaattgtcaa aggataaagt ttcctgtttg
661 aaaatatatt

```

Seq ID: 223

>chzp_ch-v-062_173G>A

```

1  agataaagta cttttaggat cattcaaggc acacacccat aacactgagt atgtaagaca
61  gaaatgctct ctctggaaat tacagcagtg ctggtgctgg gatgccatga tgaggagtgt
121 gtggcccaca atcatgtaga ccttgggaaa acctggatta aaatgatttt gcattcatcct
181 ggccctgtat aagatacata tcagaatgaa aaccactccc agtgtgactt tgaattgctt
241 ttccattttt tcttcttggg attagagagc ttcacttaga ttcatctaa gctgtgatgt
301 tgtacgttga cctgatttac ctaaaatgtc tttcctctcc tttcagCTCT GTCTGATCTG
361 GAGCTCGCAG CCCAGTCAAT AATCTTCATT TTTGCTGGCT ATGAAACCAC CAGCAGTGTT
421 CTTTCCTTCA CTTTATATGA ACTGGCCACT CACCCTGATG TCCAGCAGAA ACTGCAAAAG
481 GAGATTGATG CAGTTTTGCC CAATAAGgtg aggggatgac ccctggagat gaagggaaga
541 ggtgaagcct tagcaaaaat gcctcctcac cactccccag gagaattttt ataaaaagca
601 taatcactga ttccttcact gacataatgt aggaagcctc tgaggagaaa aacaaaggga
661 gaaacataga gaacggttgc tactggcaga agcataagat ctttgtacaa tattgctggc
721 cctgggttcac ctgtttactg ttatcacaat aatgctaagt aaaaaaaaaa aaaaaaaaaa
781 aaaaaaaaaa aggagtgtgg cgagaagatg gccaaacagg aacagc

```

Seq ID: 224

>chzp_ch-v-063_312C>T

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1  agataaagta cttttaggat cattcaaggc acacacccat aacactgagt atgtaagaca
61  gaaatgctct ctctggaaat tacagcagtg ctggtgctgg gatgccatga tgaggagtgt
121 gtggcccaca atcatgtaga ccttgggaaa acctggatta aaatgatttt gcgtcatcct
181 ggccctgtat aagatacata tcagaatgaa aaccactccc agtgtgactt tgaattgctt
241 ttccattttt tcttcttggg attagagagc ttcacttaga ttcatctaa gctgtgatgt
301 tgtacgttga cctgatttac ctaaaatgtc tttcctctcc tttcagCTCT GTCTGATCTG
361 GAGCTCGCAG CCCAGTCAAT AATCTTCATT TTTGCTGGCT ATGAAACCAC CAGCAGTGTT
421 CTTTCCTTCA CTTTATATGA ACTGGCCACT CACCCTGATG TCCAGCAGAA ACTGCAAAAG
481 GAGATTGATG CAGTTTTGCC CAATAAGgtg aggggatgac ccctggagat gaagggaaga
541 ggtgaagcct tagcaaaaat gcctcctcac cactccccag gagaattttt ataaaaagca
601 taatcactga ttccttcact gacataatgt aggaagcctc tgaggagaaa aacaaaggga
661 gaaacataga gaacggttgc tactggcaga agcataagat ctttgtacaa tattgctggc
721 cctgggttcac ctgtttactg ttatcacaat aatgctaagt aaaaaaaaaa aaaaaaaaaa
781 aaaaaaaaaa aggagtgtgg cgagaagatg gccaaacagg aacagc

```

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Figure 4 continued

Seq ID: 225

>chzn_ch-v-044_239T>C

```
1 caggcctggc acagagtcag tgctccataa atatTTTTgtt aaacgatgga tggtgagtgc
61 ttttactatc cagtattttac ccagcttata gattaagtat gaagagttca agatacatgg
121 tgttaagagt cgtttttata tgcttgcaaa gcatttttgt catatttttt ctactttgct
181 tccatctttt cttctttcac ttcatttatt aattctccat atgcttggtt aactattgca
241 gatCCCCCTTG AAATTAGACA CGCAAGGACT TCTTCAACCA GAAAAACCCA TTGTTCTAAA
301 GGTGGATTCA AGAGATGGAA CCCTAAGTGG AGAATGAgtt attctaagga tttctacttt
361 ggtcttcaag aaagctgtgc ccagaaacac cagagatttc aacttagtca ataaaacctt
421 gaaataaaga tgggcttaat ctaatgtact gcattgagtag ttggtgattt tgtacattca
481 ttgagctctc ccagagctctg tgtagagtggt tgtgcattat gtagtataaa ggaggtgacc
541 aggtaagtga cagataggta gactcagctt ctctgcttct cataggacta cctctaccca
601 cctctagtta gcatta
```

Seq ID: 226

>chzy_ch-v-066_380T>C

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1 gattaagctt ttcattgattc ctcatagaac atgaactcaa aagagggtcag caaaggggtg
61 tgtgcgattc tttgctattg gctgcagcta tagccctgcc tccttctcca gcacataaat
121 ctttcagcag cttggctgaa gactgctgtg cagggcaggg aagctccagg caaacagccc
181 agcaaacagc agcactcagc taaaaggaag actcacagaa cacagttgaa gaaggaaagt
241 ggcgATGGAC CTCATCCCAA ATTTGGCGGT GGAAACCTGG CTCTCCTGG CTGTCAGCCT
301 GGTGCTCCTC TATCTgtgag taactgtcca aactcctctc tttgtttcct tggacttggg
361 gtgctaactc ggcccccttt ccttatctg ttttgaagat caaaagagat gttcaaggag
421 aagtagctga agtggttgac gctacaaacg catagaagtt attattatct tatgcagatc
481 tatgaatgaa taaataagca tttctcccat ccaccttcta attttgggtga ctaggagggg
541 ttaggacag catttggttag tgggaatgat ttgattagct tagatctgac gaagactaat
601 caatgaaaac atggcagcgg caga
```

Seq ID: 227

>chzy_ch-v-067_474G>A

```
1 gattaagctt ttcattgattc ctcatagaac atgaactcaa aagagggtcag caaaggggtg
61 tgtgcgattc tttgctattg gctgcagcta tagccctgcc tccttctcca gcacataaat
121 ctttcagcag cttggctgaa gactgctgtg cagggcaggg aagctccagg caaacagccc
181 agcaaacagc agcactcagc taaaaggaag actcacagaa cacagttgaa gaaggaaagt
241 ggcgATGGAC CTCATCCCAA ATTTGGCGGT GGAAACCTGG CTCTCCTGG CTGTCAGCCT
301 GGTGCTCCTC TATCTgtgag taactgtcca aactcctctc tttgtttcct tggacttggg
361 gtgctaactc ggcccccttt ccttatctg ttttgaagat caaaagagat gttcaaggag
421 aagtagctga agtggttgac gctacaaacg catagaagtt attattatct tatgcagatc
481 tatgaatgaa taaataagca tttctcccat ccaccttcta attttgggtga ctaggagggg
541 ttaggacag catttggttag tgggaatgat ttgattagct tagatctgac gaagactaat
601 caatgaaaac atggcagcgg caga
```

Seq ID: 228

>chzu_ch-v-068_359G>A

```
1 gaacagttcc ctaccacgtg gagcatttgc aattaaagg agactgagat atagaggcag
61 gagaccacac cagatggctg ggtctcccca ctcccacccc cggccacat acactcagaa
121 gaggttaggc atctaggatc tccattgagc atcttgaata tggcttgcca taatatcata
181 tacagtcaat aaatatttgt taaataagga tgccctcttca atatatattg tgcaacctatg
241 aagatcacca caactaatgt gagaaaaaat gttctgttg aactctagTC TTTAGGCCCA
301 GTGGGATTTA TGAAAAGTGC CATCTCTTTA GCTGAGGATG AAGAATGGAA GAGAATACAG
361 TCATTGCTGT CTCCAACCTT CACCAGCGGA AAACCTCAAGG AGgtatgaaa ataagatgag
421 tcttaattag aaatgtaaag aatgaatctg gggacaggta gaaagtaaga tcacagtccg
481 tttccaaggg gtagtccact gagttcgagc ttcctaaaaa tgggtctttaa tctttatgta
541 cagaaaagac atcacaaaat tcattacaaa atgtcactta ctgctccatg ctggagaaaag
601 ccatatectt ctgggacttg agtctg
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Figure 4 continued

Seq ID: 229

>peptide of ch-v-068_359G>A

1 SVFTNRRSLG PVGFMKSAIS LAEDEEWKRI QSLLSPTFTS GKLKEMFPPII AQYGDVLRN

Seq ID: 230

>chzu_ch-v-047_404T>C

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1 gaacagttcc ctaccacgtg gagcatttgc aattaaaagg agactgagat atagaggcag
61 gagaccacac cagatggctg ggtctcccca ctcccacccc cgccccacat acactcagaa
121 gaggctaggc atctaggatc tccattgagc atcttgaata tggcttgcca taatatcata
181 tacagtcaat aaatatttgt taaataagga tgcctcttca atatatatttg tgcaaccatg
241 aagatcacca caactaatgt gagaaaaaat gtttctgttg aactctagTC TTTAGGCCCA
301 GTGGGATTTA TGAAAAGTGC CATCTCTTTA GCTGAGGATG AAGAATGGAA GAGAATACGG
361 TCATTGCTGT CTCCAACCTT CACCAGCGGA AAACCTCAAGG AGGcatgaaa ataagatgag
421 tcttaattag aaatgtaaag aatgaatctg gggacaggta gaaagtaaga tcacagtccg
481 tttccaaggg gtagtccact gagttcgagc ttcctaaaaa tggcttttta tctttatgta
541 cagaaaagac atcacaaaat tcattacaaa atgtcactta ctgctccatg ctggagaaag
601 ccatatcctt ctgggacttg agtctg

```

Seq ID: 231

>chzu_ch-v-069_480G>A

```

1 gaacagttcc ctaccacgtg gagcatttgc aattaaaagg agactgagat atagaggcag
61 gagaccacac cagatggctg ggtctcccca ctcccacccc cgccccacat acactcagaa
121 gaggctaggc atctaggatc tccattgagc atcttgaata tggcttgcca taatatcata
181 tacagtcaat aaatatttgt taaataagga tgcctcttca atatatatttg tgcaaccatg
241 aagatcacca caactaatgt gagaaaaaat gtttctgttg aactctagTC TTTAGGCCCA
301 GTGGGATTTA TGAAAAGTGC CATCTCTTTA GCTGAGGATG AAGAATGGAA GAGAATACGG
361 TCATTGCTGT CTCCAACCTT CACCAGCGGA AAACCTCAAGG AGgtatgaaa ataagatgag
421 tcttaattag aaatgtaaag aatgaatctg gggacaggta gaaagtaaga tcacagtcc[a]
481 tttccaaggg gtagtccact gagttcgagc ttcctaaaaa tggcttttta tctttatgta
541 cagaaaagac atcacaaaat tcattacaaa atgtcactta ctgctccatg ctggagaaag
601 ccatatcctt ctgggacttg agtctg

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Seq ID: 232

>chzq_ch-v-061_194C>G

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61 aatgtttttg ttcactggtg actcaggtaa cacgtcttca agaagccata gggagggttga
121 gggaggggaag tcaagaaggg aggttgagga ctgcactttt gatttacttc tgacttcacg
181 agtcactttc tgc[ ]aaagaa atctctcctt ttgcttctag CACCGACTAG ATTTCTTCA
241 GCTGATGATT GACTCCCAGA ATTCGAAAGA AACTGAGTCC CACAAAGgta accaaggagt
301 gcttctgagg gctactggcg gggacactaa gagggagggc cttgttctga aaatgtgcag
361 gaagtattcc aggaagatga gaatttttgc cacatagcag aacaacacac atttagatgt
421 tataaatggt agctggaggc actttccaga agcccacagg tatagccatg ttccaggctg
481 aaagggcaac cctaagcaaa cctagaatgc ttggaggaca gtcagtgggt tgtggatcac
541 ctacatgaga tcaaatgcca gttctcagcc tcttcagat ccaccaagtg agaacctcta
601 cttggaaatt tatatcaaac ata

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Seq ID: 233

>chzn_ch-v-045_291T>C

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1 caggcctggc acagagtcag tgctccataa atattttgtt aaacgatgga tggtagagtgc
61 ttttactatc cagtattttac ccagcttata gattaagtat gaagagttca agatacatgg
121 tgttaagagt cgttttttata tgcttgcaaa gcatttttgt catatttttt ctactttgct
181 tccattcttt cttctttcac ttcatttatt aattctccat atgcttggtt aactattgta
241 gATCCCCCTT AAATTAGACA CGCAAGGATT TCTTCAACCA GAAAACCCA CTGTCTTAAA
301 GGTGGATTCA AGAGATGGAA CCCTAAGTGG AGAATGAgtt attctaagga tttctacttt
361 ggtcttcaag aaagctgtgc ccagaacac cagagatttc aacttagtca ataaaacctt

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Figure 4 continued

421 gaaataaaga tgggcttaat ctaatgtact gcatgagtag ttgggtgattt tgtacattca
481 ttgagctctc ccagagtctg tgtagagtgt tgtgcattat gtagtataaa ggaggtgacc
541 aggtaagtga cagataggta gactcagctt ctctgcttct cataggacta cctctaccca
601 cctctagtta gcatta

Seq ID: 234

>peptide of ch-v-045_291T>C

1 MRFALNMKL ALIRVLQNFV FKPKETQIP LKLDTQGLLQ PEKPIVLKVD SRDGTLSGE.

Seq ID: 235

>chzk_ch-v-065_563T>C

1 tggtcaccca ccatgtgtac agtaccctgc taggggtccag ggtcatgaaa gtaaataata
61 ccagactgtg cccttgagga actcacctct gctaagggaa acaggcacag aaaccacaa
121 ggggtggtaga gaggaaatag gacaatagga ctgtgtgagg gggataggag gcaccagag
181 gaggaaatgg ttacatctgt gtgaggaggt tggtaaggaa agactttaat agaaggggtc
241 tgtctggctg ggcttgcaag gatgtgtagg agtcatctag ggggcacaag tacactccag
301 gcagagggaa ttgcatgggt aaagatctgc agttgtggct tgtggggatg gatttcaagt
361 attctggaat gaagacagcc atggaaacaa gggcaggtga gaggatattt aagaggcttc
421 atgccaatgg ctccacttca gtttctgata agaactcagg ttccgtggag tccctgataa
481 aactgattaa gttgtttatg attccccata gaatatgaac tcaaaggagg taagcaaagg
541 ggtgtgtgctg attctttgct acgggctgca gctgcagccc cacctccttc tccagcacat
601 aaacattttca gcagcttgac ctaagactgc tgtgcagggc agggatgctc caggcagaca
661 gcccagcaaa caacagcaca cagctgaaag taagactcag aggagacagt tgaagaaggc
721 aagtggcgat ggacctcatc ccaaatttgg cgggtgaaac ctggcttctc ctggctgtca
781 gcctggtgct cctctatctg tcagtaactg tccagattcc tctcctctgt

Seq ID: 236

>chzl_ch-v-040_206C>T

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121 agcacgtgc accactgtc ctgcaccac tgtctggcac tccctagtga gatgaaccg
181 gtacctcaga tgaaaatgca gaaatacccc gtcttctgtg tcaactcacac tgggagctgt
241 agaccggagc tgttcttatt cggccatctt ggctccacc cccgagtttt ggcttttaac
301 tgaaagtgtg ttgatgtggg aaggagataa tgccatgcat ttatgagcac atattagagg
361 gtctgagaca atgcatgtga taaaagggtca cctaagggaag aaaaaaagaa caagggaaga
421 cactggaaag aacgtgatgc tgggagtccc tggggcacca aagtctggag aaaagtggta
481 accacaaggc tcccagccta gtttactga agacctcgac actaggtgac ttatgggatc
541 cttggttaga caagccttga aaagttttac aatagcaaag gtggacgttg tcagaaccaa
601 atgatgtcac gtgtgtattt gtgtgtgtgt gtcagtgtgt cctgataaca atcatgacaa
661 ataaagcagg ctgtgaagag gggattccca tgctcgtgtg cctgataaca caactatcac
721 aaacgctttg cgaaaccaca agtttgcaca aaggcaatcc caaccttaca caaaa

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Figure 5

>CYP3A5 insert in pKK233-2 (Seq ID 144)

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61 ATGGACTTTT TAAGAGACTG GGAATTCCAG GGCCACACACC TCTGCCTTTG TTGGGAAATG
121 TTTTGTCCTA TCGTCAGGGT CTCTGGAAAT TTGACACAGA GTGCTATAAA AAGTATGGAA
181 AAATGTGGGG AACGTATGAA GGTCAACTCC CTGTGCTGGC CATCACAGAT CCCGACGTGA
241 TCAGAACAGT GCTAGTGAAA GAATGTTATT CTGTCTTCAC AAATCGAAGG TCTTTAGGCC
301 CAGTGGGATT TATGAAAAGT GCCATCTCTT TAGCTGAGGA TGAAGAATGG AAGAGAATAC
361 GGTCATTGCT GTCTCCAACC TTCACCAGCG GAAAACTCAA GGAGATGTTT CCCATCATTG
421 CCCAGTATGG AGATGTATTG GTGAGAAACT TGAGGCGGGA AGCAGAGAAA GGCAAGCCTG
481 TCACCTTGAA AGACATCTTT GGGGCCTACA GCATGGATGT GATTACTGGC ACATCATTTG
541 GAGTGAACAT CGACTCTCTC AACAATCCAC AAGACCCCTT TGTGGAGAGC ACTAAGAAGT
601 TCCTAAAATT TGGTTTCTTA GATCCATTAT TTCTCTCAAT AATACTCTTT CCATTCCTTA
661 CCCCAGTTTT TGAAGCATTA AATGTCTCTC TGTTTCCAAA AGATACCATA AATTTTTTTAA
721 GTAAATCTGT AAACAGAATG AAGAAAAGTC GCCTCAACGA CAAACAAAAG CACCGACTAG
781 ATTTCCCTCA GCTGATGATT GACTCCCAGA ATTCGAAAGA AACTGAGTCC CACAAAGCTC
841 TGTCTGATCT GGAGCTCGCA GCCCAGTCAA TAATCTTCAT TTTTGCTGGC TATGAAACCA
901 CCAGCAGTGT TCTTTCCTTC ACTTTATATG AACTGGCCAC TCACCCTGAT GTCCAGCAGA
961 AACTGCAAAA GGAGATTGAT GCAGTTTTGC CCAATAAGGC ACCACCTACC TATGATGCCG
1021 TGGTACAGAT GGAGTACCTT GACATGGTGG TGAATGAAAC ACTCAGATTA TTCCCAGTTG
1081 CTATTAGACT TGAGAGGACT TGCAAGAAAG ATGTTGAAAT CAATGGGGTA TTCATTCCCA
1141 AAGGGTCAAT GGTGGTGATT CCAACTTATG CTCTTCACCA TGACCCAAAG TACTGGACAG
1201 AGCCTGAGGA GTTCCGCCCT GAAAGGTTCA GTAAGAAGAA GGACAGCATA GATCCTTACA
1261 TATACACACC CTTTGGAAC TGGACCCAGAA ACTGCATTGG CATGAGGTTT GCTCTCATGA
1321 ACATGAAACT TGCTCTAATC AGAGTCCTTC AGAACTTCTC CTTCAAACCT TGTAAGAGAA
1381 CACAGATCCC CTTGAAATTA GACACGCAAG GACTTCTTCA ACCAGAAAAA CCCATTGTTT
1441 TAAAGGTGGA TTCAAGAGAT GGAACCCTAA GTGGAGAAca tcaccatcac catcactGAg
1501 atctgcag
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